



SCHOOL OF BUSINESS
AND MANAGEMENT OF
TECHNOLOGY OF BSU



Innovative ICT Education for Social-Economic Development (IESED)
574283-EPP-1-2016-1-LT-EPPKA2-CBHE-JP

PSYCHOLOGY OF INFORMATION PERCEPTION

Minsk 2018

1. COURSE PLAN

Course code 3

Year of study	Semester	Academic hours					Hours of course work	ECTS	Number of hours
		Total	Lectures	Lab	Practice/ seminar	Independent work			
2	4	82	24	16		42		3	Full-time
2	4	82	8	4		70		3	Part-time

2. COMPETENCIES (IT Profile 1-9)

Plan and organize support of various learning and teaching activities.

3. COURSE GOAL

The consideration of a wide range of mental phenomena associated with the perception and processing of information by a person, the formation of a holistic view of the structure of mental cognitive processes, their patterns and mechanisms.

4. COURSE OUTCOMES (4-5)

After completing this course student will be able to:

- analyze psychological factors that determine the effectiveness of human perception of information;
- apply models of mental cognitive processes in human-computer interaction;
- apply psychological factors that determine the productivity of the processes of receiving and processing information by a person;
- understand engineering-psychological requirements for input-output tools;
- conduct a psychological analysis of the processes of perception and processing of information included in various activities;
- identify the psychological factors that determine the productivity of the processes of receiving and processing information by a person.

5. COURSE CONTENT (FULL TIME)

№	Name of the topic	Number of academic hours					Form of knowledge control
		TOTAL	Lectures	practical tasks	labs	Independent work	
1	2	3	4	5	6	7	8
1	Introduction and general description of the discipline	4	2			2	Oral Interview
2	Sensory processes in humans	16	6		2	8	Defense of laboratory work
3	Perceptual processes in humans	16	4		4	8	Defense of laboratory work
4.	Human memory and its role in perception of information	14	2		4	8	Defense of laboratory work
5	Attention and its role in the perception of information	10	2		4	4	Defense of laboratory work
6	Thinking and its role in perception and	10	2		2	6	Defense of laboratory work

	information						
7	Imagination and its role in perception of information	4	2			2	Oral Interview
8	Representations and their role in perception of information	4	2			2	Oral Interview
9	Speech and its role in perception and information	4	2			2	Oral Interview
	Total	82	24		16	42	

6. COURSE CONTENT (PART TIME)

№	Name of the topic	Number of academic hours					Form of student's knowledge control
		TOTAL	Lecture	Practical tasks	Labs	Independent work	
1	2	3	4	5	6	7	8
1	Introduction and general description of the discipline	4,5	0,5			4	Oral Interview
2	Sensory processes in humans	12,5	0,5			12	Oral Interview
3	Perceptual processes in humans	13	1			12	Oral Interview
4.	Human memory and its role in perception of information	13	1			12	Oral Interview
5	Attention and its role in the perception of information	11	1		2	8	Defense of laboratory work
6	Thinking and its role in perception and information	9	1		2	8	Defense of laboratory work
7	Imagination and its role in perception of information	5	1			4	Oral Interview
8	Representations and their role in perception of information	5	1			4	Oral Interview
9	Speech and its role in perception and information	7	1			6	Oral Interview
	Total	82	8		4	70	

7. THEORETICAL CONTENT

№	Names of topics	Content
1	Introduction and general description of the discipline	The importance and role of various types of information sources in human life. Influence of information on human life in modern conditions. Theoretical and practical problems of the psychology of information perception. Psychic reflection and human activity. Primary and secondary mental images. Information models and schemes. Consciousness as the highest form of mental reflection. Mind and activity. Sensory and perceptual processes.
2	Sensory processes in humans	The process of the occurrence of sensations. Analyzers, their structural scheme and functioning. Classification of sensations. General properties of sensations. Sensitivity thresholds of analyzers. Methods for determining absolute and differential sensitivity thresholds. Sensation of light and color. Visual analyzer configuration. Witt's reflex. Accommodation and its possibilities. Myopia and presbyopia and their causes. Aberration of the lens and its types. Astigmatism of vision. Auditory sensations. The device and operation of the auditory analyzer. Sensitivity thresholds of the auditory analyzer. Skin sensations. Tactile, temperature and pain sensations. Sensations of balance and orientation in space. Taste and olfactory sensations. Device and function of taste analyzer. Thresholds of taste sensitivity.

		The meaning of smell for a person. The structure and functioning of the odor analyzer.
3	Perceptual processes in humans	The main differences between perception and sensations. Perception properties. Apperception: personal, situational. Criterial basis of perception and its components. Specific features of percept images among other types of images. The dual nature of images of perception. Perception of space, size, shape and volume of objects. The phenomena of binocular parallax, superposition, linear perspective and gradient of texture. The concepts of convergence, divergence and accommodation of the eyes. Specific features of perception of figures, backgrounds, the whole and the parts. Recognizing the object. Illusions of perception. Perception of movement. Stroboscopic effect. Perception of time. Perception of speech. Perception of man by man. Factors and stereotypes of social perception.
4.	Human memory and its role in the perception of information	Memory as a common component of all mental processes. Meaning of memory in a person's life, teaching, activity and communication. Types of memory. Basic memory processes. The essence of the psychological, physiological, physical and biochemical approaches to the study of memory. Memory as a process of processing information. Main psychological theories of memory. Basic laws and regularities of a memory. Formation and development of memory. Individual differences in memory, their quantitative and qualitative characteristics. Disorders of memory processes. Age features of memory.
5	Attention and its role in perception	Psychological essence of attention. The role of attention in human life. Features of attention as a mental process. Physiological basis of attention. The main functions of attention. Interrelation of attention with other cognitive processes. Types of human attention. Factors determining attention. Natural and socially conditioned attention, direct and indirect attention. Characteristics and properties of attention. Basic properties of human attention. Absence and hesitation of attention. Individual differences in attention. Development and training of attention.
6	Thinking and its role in the perception of information	Characteristics and essence of the process of thinking. The main signs of thinking. Connection between thinking and perception. The origin of thinking. Types and kinds of human thinking. Thinking operations. Forms of thinking. Qualitative characteristics of thinking. Individual features of thinking. The connection between thinking and logic, practical activity and personal characteristics. Individual styles of thinking. Scientific approaches to explaining the nature of thinking. Activity approach to the problem of thinking. Formation and development of thinking. Thinking as a process of solving problems. Stages of the thought process. Factors affecting the productivity of thinking. Motivation of thinking. Psychological barriers in thinking and ways to overcome them. Ways to activate thinking. Disturbance of thinking processes.
7	Imagination and its role in perception of information	The essence of the imagination and its role in the life of a person. Difference between imagination and perception, memory, and thinking. Imagination as a mechanism to resolve problematic situations. Imagination as the transformation of representations. Mechanisms of image synthesis. The connection between imagination and activity, behavior and organic processes of man. Individual features of the imagination and their relationship to personal qualities. Influence of images on physiological processes. Types of imagination. Forms of imagination. Individual features of the imagination, and their connection to personal qualities. Functions of the imagination. General patterns of the development of the imagination.
8	Representations and their role in the perception of information	General characteristics of representations and their properties. Representations as secondary images and their differences from the primary image (perception images). Features of representations. Functions of representations. Kinds of representations and their characteristic. Classification of representations. Individual features of representations. Development of representations.
9	Speech and its role in the perception of information	The essence of speech and language and their significance in human life. Structure of speech and language. The content of the concepts "word", "meaning", "context". Interrelation between speech and language. Types of speech. Verbal and non-verbal speech. Features of written and spoken speech.

	External and internal speech. Dialogical and monologic speech. Speech functions. Speech violations. Speech and communication. The connection between speech and thinking. Speech and personality. Diagnostic potential of speech. Correlation of speech parameters with personal characteristics.
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8. PRACTICAL CONTENT

№	Name of the practical assignment	Content

9. LABORATORY PRACTICE

№	Name of practical assignment	Content
1	Study of the features of perception of the form with passive and active traction.	Investigation of the features of perception of the shape of flat objects on the basis of tactile and kinesthetic sensations
2	The study of the selectivity of visual perception	Experimental study of factors that determine the selectivity of the perception of textual information
3	Experimental study of illusions of visual perception.	Experimental study of the geometric illusion of Muller-Lyer
4	Measuring the amount of short-term memory.	Measuring the amount of short-term memory using different techniques
5	Investigation of direct and indirect memory	Research of productivity factors of direct and indirect memory
6	Investigation of the properties of attention by means of correction task	Investigation of the properties of attention by means of correction task
7	Study of the attention set-shifting	Study of the attention set-shifting using the red and black table
8	The study of conceptual thinking	Experimental study of conceptual thinking

10. ASSIGNMENT FOR INDEPENDENT WORK

№	Title of independent work
1	The perception and processing of information by a person. The structure and characteristics of human activities in the reception and processing of information. The factors influencing the productivity of processes of reception and processing of information by a person.
2	Sensorial processes in the structure of receiving and processing of information. The types of senses (according to modalities, location of receptors, the level of awareness) and methods for their studying. The channels of information processing and the types of representative systems.
3	Perceptual processes in the structure of receiving and processing of information. The general properties of perception (integrity, constness, categorical structure, apperception, objectless, structuredness) and the methods of their studying.
4	Representation and its role in the perception of information. The classification of representations (according to the types of analyzers, the degree of generality, degree of expressing of willed efforts, duration, content).
5	Attention and its role in the perception of information. The main properties of attention (stability, switching, capacity, intensity, distribution) and the methods of their studying.
6	Memory and its role in the perception of information. The general properties of memory (the speed of memorizing, the capacity of memory, precision, duration, readiness for reproduction) and the ways of their studying.
7	Imagination and its role in the perception of information. The main types of imagination (active, passive, reconstructing, creative) and the ways of their studying.
8	Thinking and its role in the perception of information. The basic mental operations (comparison, analysis, synthesis, abstraction and generalization) and the methods of their studying.
9	Speaking and its role in the perception of information. The properties of speaking (clarity, thoroughness, informativeness, expressiveness, effectiveness). The perception of speaking and speech messages.

12. SYSTEM OF ASSESSMENT OF KNOWLEDGE AND SKILLS (ACCORDING TO THE NATIONAL REQUIREMENTS)

A ten-point scale, depending on the grade and the mark, includes the following criteria:

10 (ten) points, passed:

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education in the academic discipline, as well as on major issues that go beyond its limits;
- accurate use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions;
- perfect mastering of the tools of the academic discipline, the ability to use it effectively in formulation and solution of scientific and professional problems;
- the expressed ability independently and creatively to solve complex problems in non-standard situations;
- complete and profound studying of basic, additional literature on the subject of the discipline;
- the ability to freely navigate in theories, concepts and directions on the discipline and give them an analytical assessment, use the scientific achievements of other disciplines;
- creative independent work on practical, laboratory classes, active creative participation in group discussions, high level of the culture of performance of tasks.

9 (nine) points, passed:

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education on the academic discipline;
- accurate use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions;
- mastering of the tools of the academic discipline, the ability to use it effectively in formulation and solution of scientific and professional problems;
- ability independently and creatively to solve complex problems in non-standard situations within the curriculum of the institution of higher education on the academic discipline;
- complete studying of basic, additional literature on the subject of the discipline, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in theories, concepts and directions on the discipline and give them an analytical assessment;
- Systematic, active independent work on practical, laboratory classes, active creative participation in group discussions, high level of the culture of performance of tasks.

8 (eight) points, passed:

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education in the academic discipline in the volume of the curriculum of the institution of higher education on the discipline;
- use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions, the ability to make sound conclusions and generalizations;
- mastering of the tools of the academic discipline (methods of complex analysis, information technology), the ability to use it effectively in formulation and solution of scientific and professional problems;
- ability independently to solve complex problems within the curriculum of the institution of higher education on the academic discipline;

- studying of basic, additional literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in theories, concepts and directions on the discipline and give them an analytical assessment;
- active independent work on practical, laboratory classes, systematic participation in group discussions, high level of the culture of performance of tasks.

7 (seven) points, passed:

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education on the academic discipline;
- use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions, the ability to make sound conclusions and generalizations;
- mastering of the tools of the academic discipline, the ability to use it effectively in formulation and solution of scientific and professional problems;
- free possession of generic solutions within the curriculum of the institution of higher education on the academic discipline;
- studying of basic, additional literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in basic theories, concepts and directions on the discipline and give them an analytical assessment;
- independent work on practical, laboratory classes, participation in group discussions, high level of the culture of performance of tasks.

6 (six) points, passed:

- sufficiently full and systematized knowledge in the volume of the curriculum of the institution of higher education on the discipline;
- use of the necessary scientific terminology, competent, logically correct statement of the answer to questions, the ability to make sound conclusions and generalizations;
- mastering of the tools of the academic discipline, the ability to use it effectively in solution of scientific and professional problems;
- ability independently to apply generic solutions within the curriculum of the institution of higher education on the academic discipline;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in basic theories, concepts and directions on the discipline and give them a comparative assessment;
- active independent work on practical, laboratory classes, periodic participation in group discussions, high level of the culture of performance of tasks.

5 (five) points, passed:

- sufficient knowledge in the volume of the curriculum of the institution of higher education on the discipline;
- use of scientific terminology, competent, logically correct statement of the answer to questions, the ability to make sound conclusions;
- mastering of the tools of the academic discipline, the ability to use it in solution of scientific and professional problems;
- ability independently to apply generic solutions within the curriculum of the institution of higher education on the academic discipline;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;

- the ability to navigate in basic theories, concepts and directions on the discipline and give them a comparative assessment;
- active independent work on practical, laboratory classes, periodic participation in group discussions, high level of the culture of performance of tasks;
- independent work on practical, laboratory classes, periodic participation in group discussions, sufficient level of the culture of performance of tasks.

4 (four) points, passed:

- sufficient knowledge within the educational standard of higher education;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- use of scientific terminology, logical statement of the answer to questions, the ability to make sound conclusions;
- ability to draw conclusions without essential errors;
- mastering of the tools of the academic discipline, the ability to use it in solution of standard (typical) tasks;
- ability to solve standard (typical) tasks under the guidance of a teacher;
- ability to navigate in basic theories, concepts and directions on the discipline and give them an assessment;
- work under the guidance of a teacher on practical, laboratory classes, the permissible level of the culture of performance of tasks.

3 (three) points, failed:

- insufficient knowledge within the educational standard of higher education;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- knowledge of a part of the basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- use of scientific terminology, presentation of answers to questions with significant, logical errors;
- weak possession of the tools of the academic discipline, incompetence in solving standard (typical) tasks;
- inability to navigate in basic theories, concepts and directions on the discipline;
- work under the guidance of a teacher on practical, laboratory classes, the permissible level of the culture of performance of tasks.
- passivity on practical, laboratory classes, low level of the culture of performance of tasks.

2 (two) points, failed:

- fragmented knowledge within the educational standard of higher education;
- knowledge of individual literary sources, recommended by the curriculum of the institution of higher education on the discipline;
- inability to use scientific terminology of the academic discipline, the presence in the answer rude, logical errors;
- passivity on practical, laboratory classes, low level of the culture of performance of tasks.

1 (one) point, failed:

- lack of knowledge and (competences) within the educational standard of higher education, failure to answer, failure to appear for attestation without good cause.

13. METHODS AND MEANS OF IMPLEMENTATION OF THE CONTENT OF THE EDUCATIONAL PROGRAM AND TRAINING OF EDUCATIONAL, TRAINING AND METHODOLOGICAL MATERIALS

The training will be conducted using interactive methods (round tables, project method). Trainees will be provided with electronic presentations of lectures, electronic and printed versions of handouts to laboratory studies.

In the classroom, students will learn the discipline directly in the computer classroom. System requirements for the specified software: Microsoft® Windows® 7/8/10 (32- or 64-bit), 2 GB short-term memory minimum, 4 GB short-term memory recommended; 20 GB of available disk space minimum, 1280 x 720 minimum screen resolution.

The following tools and technologies were used in the preparation of training, teaching and methodological materials:

- MS Office;
- Internet services.

14. RESOURCES

Basic literature

1. Kozubovsky, V.M. General psychology: cognitive processes / V.M. Kozubovsky. - 3th ed. – Minsk: Amalfea, 2005. – 368 p.
2. Lobanov, A.P. Cognitive psychology: tutorial / A.P. Lobanov. – 2th ed. – M.: SRC Infra-M; Minsk : Nov. znanie, 2012. – 376 p.
3. Nemov, R.S. General psychology. Volume 2: Sensations, perception, attention, memory, imagination, thinking, speech. Mental conditions, settings: textbook / R.S. Nemov. - 6th ed. – M. : Yurayt, 2011. – 726 p.
4. Schiffman, H.R. Sensation and perception / H.R. Schiffman. – St. Petersburg .: Peter, 2003. – 928 p.
5. Shupeyko, I.G Psychology of perception and processing of information: laboratory workshop / I.G. Shupeyko. – Minsk: BSUIR, 2008. – 79 p.
6. Vaynshteyn, L.A. Psychology of perception / L.A. Vaynshteyn. – Minsk: Tesey, 2007. – 224 p.
7. Vaynshteyn, L.A. Psychology of perception and information processing / L.A. Vaynshteyn. – International publishing house Lambert Academic Publishing, Germany, 2014. – 328 p.

Additional literature

1. Badanina, L.P. Psychology of mental processes : tutorial / L.P. Badanina. – 3-d ed., ster. – M. : Flinta, 2017. – 238 p.
2. Gusev, A.N. General Psychology. In 7 volumes. Volume 2: Sensation and perception / A.N. Gusev / Ed. by B.S. Bratus. — M.: Academia, 2007. – 416 p.
3. Lobanov, A. P. Practicum on general and cognitive psychology : practicum / A.P. Lobanov. – Minsk : BSPU, 2014. – 144 p.
4. Psychology of sensations and perceptions / ed. Yu.B. Gippenreiter, V.V. Lyubimov, M.B. Mikhailovsky. – 2th ed. – M.: CheRo, 2002. – 632 p.
5. Velichkovskiy, B.M. Cognitive science: the basics of psychology of cognition: In 2 vol. / B.M. Velichkovskiy. – M. : Smysl, 2006. – 448 p.

PREPARED

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